Name:

Date:

Final Review: Electric Circuits

Multiple Choice

1. If the potential difference is tripled in a circuit, then the current will
   1. Be tripled
   2. Be one third of the original current
   3. Will increase by a factor of nine
   4. Decrease by a factor of nine
2. A squirrel can run along one wire without being electrocuted because
   1. The squirrel’s skin has an extremely high resistance
   2. The squirrel does not form a complete circuit with the wire
   3. The squirrel does not have a potential difference established
   4. the squirrel is possessed with anti-electricity
3. To increase the current in a circuit, you should (select all that apply)
   1. Increase the resistance
   2. Decreases the resistance
   3. Increase the voltage
   4. Decrease the voltage
4. In a closed circuit, the electrons’ net forward movement is
   1. Incredibly fast, electrons are tiny
   2. Incredibly slow, electrons are bumping into things
   3. In a straight line, they have an unobstructed path
   4. Not going to happen, the protons are the ones that move
5. In order for a current to start, what must happen (select all that apply)
   1. A potential difference must be established
   2. A closed loop must be formed
   3. Electrons must be pumped into the circuit
   4. There can be no electric field
6. What action will result in an increase in the resistance of a circuit?
   1. Having a wire with a wide cross sectional area
   2. Having a good conductor
   3. Having an extra-long wire
7. Of the following, which statement is false?
   1. The SI unit for current is the ampere.
   2. The SI unit for charge is the Coulomb.
   3. The SI unit for voltage is the Joule.
   4. The SI unit for resistance is the Ohm.

Free Response

1. A battery has a voltage of 12 volts. If the resistance in the circuit is 8 Ohms, what will be the current of the circuit?
2. If the current in a circuit is 12 A, and the resistance in the circuit is 100,000 Ω, how large is the potential difference?

1. Sketch a parallel circuit with a battery and two resistors.
2. Sketch a series circuit with a battery and two resistors.
3. Fill in the following chart. Assume that the circuit has two resistors that are connected in series.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Voltage | Current | Resistance |
| Battery | 12 V |  |  |
| Resistor 1 |  |  | 8 Ω |
| Resistor 2 |  |  | 4Ω |

1. Fill in the following chart Assume that the circuit has two resistors and is connected in parallel.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Voltage | Current | Resistance |
| Battery | 12 V |  |  |
| Resistor 1 |  |  | 8 Ω |
| Resistor 2 |  |  | 4Ω |